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FYI on Questions and Answers
Answers to Commonly asked "New Internet User" Questions

Status of this Memo

This FYI RFC is one of three FYI's called, "Questions and Answers" (Q/A), produced by the User Services Working Group (USWG) of the Internet Engineering Task Force (IETF). The goal is to document the most commonly asked questions and answers in the Internet.

This memo provides information for the Internet community. It does not specify any standard. Distribution of this memo is unlimited.

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1. Introduction

New users joining the Internet community for the first time have had the same questions as did everyone else who has ever joined. Our quest is to provide the Internet community with up to date, basic Internet knowledge and experience, while moving the redundancies away from the electronic mailing lists so that the lists' subscribers do not have to read the same queries and answers over and over again.

Future updates of this memo will be produced as USWG members become

aware of additional questions that should be included, and of deficiencies or inaccuracies that should be amended in this document. Additional FYI Q/A's will be published which will deal with intermediate and advanced Q/A topics.

The Q/A mailing lists are maintained by Gary Malkin at FTP.COM. They are used by a subgroup of the USWG to discuss the Q/A FYIs. They include:

quail@ftp.com	This is a discussion mailing list. Its primary use is for pre-release (to the USWG) review of the Q/A FYIs.
quail-request@ftp.com	This is how you join the quail mailing list.
quail-box@ftp.com	This is where the questions and answers will be forwarded-and-stored. It is not necessary to be on the quail mailing list to forward to the quail-box.

2. Acknowledgements

The following people deserve thanks for their help and contributions to the FYI Q/As: Berlin Moore (PREPNet), Craig Partridge (BBN), Jon Postel (ISI), Karen Roubicek (BBNST), James Van Bokkelen (FTP Software, Inc.), John Wobus (Syracuse University), and David Paul Zimmerman (Rutgers).

3. Questions About the Internet

I just got on the Internet. What can I do now?

You now have access to all the resources you are authorized to use on your own Internet host, on any other Internet host on which you have an account, and on any other Internet host that offers publicly accessible information. The Internet gives you the ability to move information between these hosts via file transfers. Once you are logged into one host, you can use the Internet to open a connection to another, log in, and use its services interactively. In addition, you can send electronic mail to users at any Internet site and to users on many non-Internet sites that are accessible via electronic mail.

There are various other services you can use. For example, some hosts provide access to specialized databases or to archives of information. The Internet Resource Guide provides information regarding some of these sites. The Internet Resource Guide lists facilities on the Internet that are available to users. Such

facilities include supercomputer centers, library catalogs and specialized data collections. The guide is published by the NSF Network Service Center (NNSC) and is continuously being updated. The Resource Guide is distributed free via e-mail (send a note to resource-guide-request@nnsc.nsf.net to join the e-mail distribution) and via anonymous FTP (in nnsc.nsf.net:resource-guide/*). Hardcopy is available at a nominal fee (to cover reproduction costs) from the NNSC. Call the NNSC at 617-873-3400 for more information.

How do I find out if a site has a computer on the Internet?

Three good sources to consult are "!%@:: A Directory of Electronic Mail Addressing and Networks" by Donnalyn Frey and Rick Adams; "The User's Directory to Computer Networks", by Tracy LaQuey; and "The Matrix: Computer Networks and Conferencing Systems Worldwide", by John Quarterman.

In addition, it is possible to find some information about Internet sites in the WHOIS database maintained at the DDN NIC at SRI International. The DDN NIC provides an information retrieval interface to the database that is also called WHOIS. To use this interface, Telnet to NIC.DDN.MIL and type "whois" (carriage return). No login is necessary. Type "help" at the whois prompt for more information on using the facility. WHOIS will show many sites, but may not show every site registered with the DDN NIC (simply for reasons having to do with how the program is set up to search the database).

4. Questions About TCP/IP

What is TCP/IP?

TCP/IP (Transmission Control Protocol/Internet Protocol) [4,5,6] is the common name for a family of data-communications protocols used to tie computers and data-communications equipment into computer networks. TCP/IP originated for use on a network called ARPANET, but it is currently used on a large international network of universities, other research institutions, government facilities, and some corporations called the Internet. TCP/IP is also sometimes used for other networks, particularly local area networks that tie together numerous different kinds of computers or tie together engineering workstations.

What are the other standard protocols in the TCP/IP family?

Other than TCP and IP, the three main protocols in the TCP/IP suite are the Simple Mail Transfer Protocol (SMTP), the File

Transfer Protocol (FTP), and the Telnet Protocol. There are many other protocols in use on the Internet. The Internet Activities Board (IAB) regularly publishes an RFC [2] that describes the state of standardization of the various Internet protocols. This document is the best guide to the current status of Internet protocols and their recommended usage.

5. Questions About Internet Documentation

What is an RFC?

The Request for Comments documents (RFCs) are working notes of the Internet research and development community. A document in this series may be on essentially any topic related to computer communication, and may be anything from a meeting report to the specification of a standard. Submissions for Requests for Comments may be sent to the RFC Editor, Jon Postel (POSTEL@ISI.EDU).

Most RFCs are the descriptions of network protocols or services, often giving detailed procedures and formats providing the information necessary for creating implementations. Other RFCs report on the results of policy studies or summarize the work of technical committees or workshops.

While RFCs are not refereed publications, they do receive technical review from either the task forces, individual technical experts, or the RFC Editor, as appropriate. Currently, most standards are published as RFCs, but not all RFCs specify standards.

Anyone can submit a document for publication as an RFC. Submissions must be made via electronic mail to the RFC Editor. RFCs are distributed online by being stored as public access files, and a short message is sent to the distribution list indicating the availability of the memo. Requests to be added to this distribution list should be sent to RFC-REQUEST@NIC.DDN.MIL.

The online files are copied by interested people and printed or displayed at their sites on their equipment. (An RFC may also be returned via electronic mail in response to an electronic mail query.) This means that the format of the online files must meet the constraints of a wide variety of printing and display equipment.

Once a document is assigned an RFC number and published, that RFC is never revised or re-issued with the same number. There is never a question of having the most recent version of a particular

RFC. However, a protocol (such as File Transfer Protocol (FTP)) may be improved and re-documented many times in several different RFCs. It is important to verify that you have the most recent RFC on a particular protocol. The "IAB Official Protocol Standards" [2] memo is the reference for determining the correct RFC to refer to for the current specification of each protocol.

How do I obtain RFCs?

RFCs can be obtained via FTP from NIC.DDN.MIL, with the pathname RFC:RFCnnnn.TXT or RFC:RFCnnnn.PS (where "nnnn" refers to the number of the RFC). Login with FTP, username "anonymous" and password "guest". The NIC also provides an automatic mail service for those sites which cannot use FTP. Address the request to SERVICE@NIC.DDN.MIL and in the subject field of the message indicate the RFC number, as in "Subject: RFC nnnn" (or "Subject: RFC nnnn.PS" for PostScript RFCs).

RFCs can also be obtained via FTP from NIS.NSF.NET. Using FTP, login with username "anonymous" and password "guest"; then connect to the RFC directory ("cd RFC"). The file name is of the form RFCnnnn.TXT-1 (where "nnnn" refers to the number of the RFC). The NIS also provides an automatic mail service for those sites which cannot use FTP. Address the request to NIS-INFO@NIS.NSF.NET and leave the subject field of the message blank. The first line of the text of the message must be "SEND RFCnnnn.TXT-1", where nnnn is replaced by the RFC number.

Requests for special distribution should be addressed to either the author of the RFC in question, or to NIC@NIC.DDN.MIL. Unless specifically noted otherwise on the RFC itself, all RFCs are for unlimited distribution.

Which RFCs are Standards?

See "IAB Official Protocol Standards" (currently, RFC 1140) [2].

How do I obtain OSI Standards documents from the Internet?

OSI Standards documents are NOT available from the Internet via anonymous FTP due to copyright restrictions. These are available from:

Omnicom Information Service
501 Church Street NE
Suite 304
Vienna, VA 22180 USA
Telephone: (800) 666-4266 or (703) 281-1135 Fax: (703) 281-1505

6. Questions about Internet Organizations and Contacts

What is the IAB?

The Internet Activities Board (IAB) is the coordinating committee for Internet design, engineering and management [7]. IAB members are deeply committed to making the Internet function effectively and evolve to meet a large scale, high speed future. The chairman serves a term of two years and is elected by the members of the IAB. The current Chair of the IAB is Vint Cerf. The IAB focuses on the TCP/IP protocol suite, and extensions to the Internet system to support multiple protocol suites.

The IAB performs the following functions:

1) Sets Internet Standards,

2) Manages the RFC publication process,

3) Reviews the operation of the IETF and IRTF,

4) Performs strategic planning for the Internet, identifying long-range problems and opportunities,

5) Acts as an international technical policy liaison and representative for the Internet community, and

6) Resolves technical issues which cannot be treated within the IETF or IRTF frameworks.

The IAB has two principal subsidiary task forces:

1) Internet Engineering Task Force (IETF)

2) Internet Research Task Force (IRTF)

Each of these Task Forces is led by a chairman and guided by a Steering Group which reports to the IAB through its chairman. For the most part, a collection of Research or Working Groups carries out the work program of each Task Force.

All decisions of the IAB are made public. The principal vehicle by which IAB decisions are propagated to the parties interested in the Internet and its TCP/IP protocol suite is the Request for Comments (RFC) note series and the Internet Monthly Report.

What is the IANA?

The task of coordinating the use of the parameters of protocols is delegated by the Internet Activities Board (IAB) to the Internet Assigned Numbers Authority (IANA). These protocol parameters are op-codes, type fields, terminal types, system names, object identifiers, and so on. The "Assigned Numbers" Request for Comments (RFC) [1] documents the currently assigned values from several series of numbers used in network protocol implementations.

Current types of assignments listed in Assigned Numbers and maintained by the IANA are:

Address Resolution Protocol Parameters
ARPANET and MILNET X.25 Address Mappings
ARPANET and MILNET Logical Addresses
ARPANET and MILNET Link Numbers
BOOTP Parameters and BOOTP Extension Codes
Domain System Parameters
IANA Ethernet Address Blocks
Ethernet Numbers of Interest
IEEE 802 Numbers of Interest
Internet Protocol Numbers
Internet Version Numbers
IP Time to Live Parameter
IP TOS Parameters
Machine Names
Mail Encryption Types
Multicast Addresses
Network Management Parameters
PRONET 80 Type Numbers
Port Assignments
Protocol and Service Names
Protocol/Type Field Assignments
Public Data Network Numbers
Reverse Address Resolution Protocol Operation Codes
Telnet Options
Terminal Type Names
Unix Ports
X.25 Type Numbers

For more information on number assignments, contact IANA@ISI.EDU.

What is "The NIC"?

"The NIC" is the Defense Data Network, Network Information Center (DDN NIC) at SRI International, which is a network information

center which holds a primary repository for RFCs and Internet drafts. The host name is NIC.DDN.MIL. Shadow copies of the RFCs and the Internet Drafts are maintained by the NSFnet on NNSC.NSF.NET and on MERIT.EDU.

The DDN NIC also provides various user assistance services for DDN users; contact NIC@NIC.DDN.MIL or call 1-800-235-3155 for more information. In addition, the DDN NIC is the Internet registration authority for the root domain and several top and second level domains; maintains the official DoD Internet Host Table; is the site of the Internet Registry (IR); and maintains the whois database of network users, hosts, domains, networks, and Points of Contact.

What is the IR?

The Internet Registry (IR) is the organization that is responsible for assigning identifiers, such as IP network numbers and autonomous system numbers, to networks. The IR also gathers and registers such assigned information. The IR may, in the future, allocate the authority to assign network identifiers to other organizations; however, it will continue to gather data regarding such assignments. At present, the DDN NIC at SRI International serves as the IR.

What is the IETF?

The Internet has grown to encompass a large number of widely geographically dispersed networks in academic and research communities. It now provides an infrastructure for a broad community with various interests. Moreover, the family of Internet protocols and system components has moved from experimental to commercial development. To help coordinate the operation, management and evolution of the Internet, the IAB established the Internet Engineering Task Force (IETF).

The IETF is chaired by Phill Gross and managed by its Internet Engineering Steering Group (IESG). The IETF is a large open community of network designers, operators, vendors, and researchers concerned with the Internet and the Internet protocol suite. It is organized around a set of eight technical areas, each managed by a technical area director. In addition to the IETF Chairman, the area directors make up the IESG membership.

The IAB has delegated to the IESG the general responsibility for making the Internet work and for the resolution of all short- and mid-range protocol and architectural issues required to make the Internet function effectively.

What is the IRTF?

To promote research in networking and the development of new technology, the IAB established the Internet Research Task Force (IRTF).

In the area of network protocols, the distinction between research and engineering is not always clear, so there will sometimes be overlap between activities of the IETF and the IRTF. There is, in fact, considerable overlap in membership between the two groups. This overlap is regarded as vital for cross-fertilization and technology transfer.

The IRTF is a community of network researchers, generally with an Internet focus. The work of the IRTF is governed by its Internet Research Steering Group (IRSG). The chairman of the IRTF and IRSG is David Clark.

7. Questions About Services

How do I find someone's electronic mail address?

There are a number of directories on the Internet; however, all of them are far from complete. The two largest directories are the WHOIS database at the DDN NIC and the PSInet White Pages. Generally, it is still necessary to ask the person for his or her email address.

How do I use the WHOIS program at the DDN NIC?

To use the WHOIS program to search the WHOIS database at the DDN NIC, telnet to the NIC host, NIC.DDN.MIL. There is no need to login. Type "whois" to call up the information retrieval program. Next, type the name of the person, host, domain, network, or mailbox for which you need information. If you are only typing part of the name, end your search string with a period. Type "help" for a more in-depth explanation of what you can search for and how you can search. If you have trouble, send a message to NIC@NIC.DDN.MIL or call 1-800-235-3155. Bug reports can be sent to BUG-WHOIS@NIC.DDN.MIL and suggestions for improvements to the program can be sent to SUGGESTIONS@NIC.DDN.MIL.

How do I become registered in the DDN NIC's WHOIS database?

If you would like to be listed in the WHOIS database, you must have an electronic mailbox accessible from the Internet. First obtain the file NETINFO:USER-TEMPLATE.TXT. You can either retrieve this file via anonymous FTP from NIC.DDN.MIL or get it

through electronic mail. To obtain the file via electronic mail, send a message to SERVICE@NIC.DDN.MIL and put the file name in the subject line of the message; that is, "Subject: NETINFO USER-TEMPLATE.TXT". The file will be returned to you overnight.

Fill out the name and address information requested in the file and return it to REGISTRAR@NIC.DDN.MIL. Your application will be processed and you will be added to the database. Unless you are an official Point of Contact for a network entity registered at the DDN NIC, the DDN NIC will not regularly poll you for updates, so you should remember to send corrections to your information as your contact data changes.

How do I use the White Pages at PSI?

Performance Systems International, Inc. (PSI), sponsors a White Pages Pilot Project that collects personnel information from member organizations into a database and provides online access to that data. This effort is based on the OSI X.500 Directory standard.

To access the data, telnet to WP.PSI.COM and login as "fred" (no password is necessary). You may now look up information on participating organizations. The program provides help on usage. For example, typing "help" will show you a list of commands, "manual" will give detailed documentation, and "whois" will provide information regarding how to find references to people. For a list of the organizations that are participating in the pilot project by providing information regarding their members, type "whois -org *".

For more information, send a message to INFO@PSI.COM.

What is Usenet? What is Netnews?

Usenet and Netnews are common names of a distributed computer bulletin board system that some computers on the Internet participate in. It is not strictly an Internet service: many computers not on the Internet also participate.

How do I get on Usenet? How do I get Netnews on my computer?

To get on Usenet, you must acquire the software, which is available for some computers at no cost from some anonymous ftp sites across the Internet, and you must find an existing Usenet site that is willing to support a connection to your computer.

What is anonymous FTP?

Anonymous FTP is a conventional way of allowing you to sign on to a computer on the Internet and copy specified public files from it [3]. Some sites offer anonymous FTP to distribute software and various kinds of information. You use it like any FTP, but the username is "anonymous" and the password is "guest".

8. Mailing Lists

What are some good mailing lists or news groups?

The TCP-IP, IETF, and RFC Distribution lists are primary lists for new Internet users who desire further information about current and emerging developments in the Internet. The first two lists are unmoderated discussion lists, and the latter is an announcement service used by the RFC Editor.

How do I subscribe to the TCP-IP mailing list?

To be added to the TCP-IP mailing list, send a message to:

TCP-IP-REQUEST@NIC.DDN.MIL

How do I subscribe to the IETF mailing list?

To be added to the IETF mailing list, send a message to:

IETF-REQUEST@ISI.EDU

How do I subscribe to the RFC Distribution list?

To be added to the RFC Distribution list, send a message to:

RFC-REQUEST@NIC.DDN.MIL

9. References

[1] Reynolds, J., and J. Postel, "Assigned Numbers", RFC 1060, USC/Information Sciences Institute, March 1990.

[2] Postel, J., Editor, "IAB Official Protocol Standards", RFC 1140, Internet Activities Board, May 1990.

[3] Postel, J., and J. Reynolds, "File Transfer Protocol (FTP), RFC 959, USC/Information Sciences Institute, October 1985.

[4] Postel, J., "Internet Protocol - DARPA Internet Program Protocol

Specification", RFC 791, DARPA, September 1981.

[5] Postel, J., "Transmission Control Protocol - DARPA Internet Program Protocol Specification", RFC 793, DARPA, September 1981.

[6] Leiner, B., R. Cole, J. Postel, and D. Mills, "The DARPA Internet Protocol Suite", IEEE INFOCOM85, Washington D.C., March 1985. Also in IEEE Communications Magazine, March 1985. Also as ISI/RS-85-153.

[7] Cerf, V., "The Internet Activities Board" RFC 1160, CNRI, May 1990.

10. Suggested Reading

For further information about the Internet and its protocols in general, you may choose to obtain copies of the following works:

Bowers, K., T. LaQuey, J. Reynolds, K. Roubicek, M. Stahl, and A. Yuan, "Where to Start - A Bibliography of General Internetworking Information", RFC 1175, FYI 3, CNRI, U Texas, ISI, BBN, SRI, Mitre, August 1990.

Comer, D., "Internetworking with TCP/IP: Principles, Protocols, and Architecture", Prentice Hall, New Jersey, 1989.

Krol, E., "The Hitchhikers Guide to the Internet", RFC 1118, University of Illinois Urbana, September 1989.

11. Condensed Glossary

As with any profession, computers have a particular terminology all their own. Below is a condensed glossary to assist in making some sense of the Internet world.

address There are two separate uses of this term in internet networking: "electronic mail address" and "internet address". An electronic mail address is the string of characters that you must give an electronic mail program to direct a message to a particular person. See "internet address" for its definition.

AI Artificial Intelligence
The branch of computer science which deals with the simulation of human intelligence by computer systems.

AIX Advanced Interactive Executive
IBM's version of Unix.

ANSI American National Standards Institute
A group that defines U.S. standards for the information processing industry. ANSI participates in defining network protocol standards.

ARP Address Resolution Protocol
An Internet protocol which runs on Ethernets and Token Rings which maps internet addresses to MAC addresses.

ARPA Advanced Research Projects Agency
The former name of what is now called DARPA.

ARPANET Advanced Research Projects Agency Network
A pioneering long haul network funded by ARPA. It served as the basis for early networking research as well as a central backbone during the development of the Internet. The ARPANET consisted of individual packet switching computers interconnected by leased lines.

ASCII American Standard Code for Information Interchange

B Byte
One character of information, usually eight bits wide.

b bit - binary digit
The smallest amount of information which may be stored in a computer.

BBN Bolt, Beranek, and Newman, Inc.
The Cambridge, MA company responsible for development, operation and monitoring of the ARPANET, and later, the Internet core gateway system, the CSNET Coordination and Information Center (CIC), and NSFnet Network Service Center (NNSC).

BITNET Because It's Time Network
BITNET has about 2,500 host computers, primarily at universities, in many countries. It is managed by EDUCOM, which provides administrative support and information services. There are three main constituents of the network: BITNET in the United States and Mexico, NETNORTH in Canada, and EARN in Europe. There are also AsiaNet, in Japan, and connections in South America. See CREN.

bps bits per second
A measure of data transmission speed.

BSD Berkeley Software Distribution
Term used when describing different versions of the Berkeley UNIX software, as in "4.3BSD UNIX".

catenet A network in which hosts are connected to networks with varying characteristics, and the networks are interconnected by gateways (routers). The Internet is an example of a catenet.

CCITT International Consultative Committee for Telegraphy and Telephony.

core gateway
Historically, one of a set of gateways (routers) operated by the Internet Network Operations Center at BBN. The core gateway system forms a central part of Internet routing in that all groups must advertise paths to their networks from a core gateway.

CREN The Corporation for Research and Educational Networking
BITNET and CSNET have recently merged to form CREN.

CSNET Computer + Science Network
A large data communications network for institutions doing research in computer science. It uses several different protocols including some of its own. CSNET sites include universities, research laboratories, and commercial companies. See CREN.

DARPA U.S. Department of Defense Advanced Research Projects Agency
The government agency that funded the ARPANET and later started the Internet.

datagram
The unit transmitted between a pair of internet modules. The Internet Protocol provides for transmitting blocks of data, called datagrams, from sources to destinations. The Internet Protocol does not provide a reliable communication facility. There are no acknowledgements either end-to-end or hop-by-hop. There is no error control for data, only a header checksum. There are no retransmissions. There is no flow control. See IP.

DCA Defense Communications Agency
The government agency responsible for installation of

the Defense Data Network (DDN), including the ARPANET and MILNET lines and PSNs. Currently, DCA administers the DDN, and supports the user assistance and network registration services of the DDN NIC.

DDN Defense Data Network
Comprises the MILNET and several other DoD networks.

DDN NIC The network information center at SRI International.
It is the primary repository for RFCs and Internet drafts, as well as providing other services.

DEC Digital Equipment Corporation

DECnet Digital Equipment Corporation network
A networking protocol for DEC computers and network devices.

default route
A routing table entry which is used to direct any data addressed to any network numbers not explicitly listed in the routing table.

DOD U.S. Department of Defense

DOE U.S. Department of Energy

DNS The Domain Name System is a mechanism used in the Internet for translating names of host computers into addresses. The DNS also allows host computers not directly on the Internet to have registered names in the same style.

EARN European Academic Research Network
One of three main constituents of BITNET.

EBCDIC Extended Binary-coded Decimal Interchange Code

EGP External Gateway Protocol
A protocol which distributes routing information to the routers and gateways which interconnect networks.

Ethernet
A network standard for the hardware and data link levels. There are two types of Ethernet: Digital/Intel/Xerox (DIX) and IEEE 802.3.

FIPS Federal Information Processing Standard

FTP File Transfer Protocol
The Internet standard high-level protocol for transferring files from one computer to another.

gateway A special-purpose dedicated computer that attaches to two or more networks and routes packets from one network to the other. In particular, an Internet gateway routes IP datagrams among the networks it connects. Gateways route packets to other gateways until they can be delivered to the final destination directly across one physical network.

GB Gigabyte
A unit of data storage size which represents 2^30 (over 1 billion) characters of information.

Gb Gigabit
2^30 bits of information (usually used to express a data transfer rate; as in, 1 gigabit/second = 1Gbps).

GNU Gnu's Not UNIX
A UNIX-compatible operating system developed by the Free Software Foundation.

header The portion of a packet, preceding the actual data, containing source and destination addresses and error-checking fields.

host number
The part of an internet address that designates which node on the (sub)network is being addressed.

HP Hewlett-Packard

HYPERchannel
High-speed communications link.

I/O Input/Output

IAB Internet Activities Board
The IAB is the coordinating committee for Internet design, engineering and management.

IBM International Business Machines Corporation

IEEE Institute for Electrical and Electronics Engineers

IETF Internet Engineering Task Force
The IETF is a large open community of network designers, operators, vendors, and researchers whose purpose is to coordinate the operation, management and evolution of the Internet, and to resolve short- and mid-range protocol and architectural issues. It is a major source of proposed protocol standards which are submitted to the Internet Activities Board for final approval. The IETF meets three times a year and extensive minutes of the plenary proceedings are issued.

internet
internetwork
Any connection of two or more local or wide-area networks.

Internet
The global collection of interconnected regional and wide-area networks which use IP as the network layer protocol.

internet address
An assigned number which identifies a host in an internet. It has two or three parts: network number, optional subnet number, and host number.

IP Internet Protocol
The network layer protocol for the Internet. It the datagram protocol defined by RFC 791.

IRTF Internet Research Task Force
The IRTF is a community of network researchers, generally with an Internet focus. The work of the IRTF is governed by its Internet Research Steering Group (IRSG).

ISO International Standards Organization

JvNC John von Neumann National Supercomputer Center

KB Kilobyte
A unit of data storage size which represents 2^10 (1024) characters of information.

Kb
: Kilobit
2^10 bits of information (usually used to express a data transfer rate; as in, 1 kilobit/second = 1Kbps = 1Kb).

KNET
: Kangaroo Network
Hardware/software product (Spartacus/Fibronics) that enables IBM mainframes to communicate over networks with the TCP/IP protocol suite.

LAN
: Local Area Network
A network that takes advantage of the proximity of computers to offer relatively efficient, higher speed communications than long-haul or wide-area networks.

LISP
: List Processing Language

MAC
: Medium Access Control
For broadcast networks, it is the method which devices use to determine which device has line access at any given time.

Mac
: Apple Macintosh computer.

MB
: Megabyte
A unit of data storage size which represents over 2^20 (one million) characters of information.

Mb
: Megabit
2^20 bits of information (usually used to express a data transfer rate; as in, 1 megabit/second = 1Mbps).

MILNET
: Military Network
A network used for unclassified military production applications. It is part of the Internet.

MIT
: Massachusetts Institute of Technology

MTTF
: Mean Time to Failure
The average time between hardware breakdown or loss of service. This may be an empirical measurement or a calculation based on the MTTF of component parts.

MTTR
: Mean Time to Recovery
The average time it takes to restore service after a breakdown or loss. This is usually an empirical measurement.

MVS Multiple Virtual Storage
An IBM operating system based on OS/1.

NASA National Aeronautics and Space Administration

NBS National Bureau of Standards
Now called NIST.

network number
The part of an internet address which designates the network to which the addressed node belongs.

NFS Network File System
A network service that lets a program running on one computer to use data stored on a different computer on the same internet as if it were on its own disk.

NIC Network Information Center
An organization which provides network users with information about services provided by the network.

NOC Network Operations Center
An organization which is responsible for maintaining a network.

NIST National Institute of Standards and Technology
Formerly NBS.

NSF National Science Foundation

NSFNET National Science Foundation Network
A high-speed internet that spans the country, and is intended for research applications. It is made up of the NSFnet Backbone and the NSFnet regional networks. It is part of the Internet.

NSFNET Backbone
A network connecting 13 sites across the continental United States. It is the central component of NSFnet.

NSFNET Regional
A network connected to the NSFnet Backbone that covers a region of the United States. It is to the regionals that local sites connect.

NYSERnet
New York State Educational and Research Network
An internet which serves NY educational and research institutions. It also serves as the NSFnet regional network for New York State.

OSI Open Systems Interconnection
A set of protocols designed to be an international standard method for connecting unlike computers and networks. Europe has done most of the work developing OSI and will probably use it as soon as possible.

OSI Reference Model
An "outline" of OSI which defines its seven layers and their functions. Sometimes used to help describe other networks.

OSPFIGP Open Shortest-Path First Internet Gateway Protocol
An experimental replacement for RIP. It addresses some problems of RIP and is based upon principles that have been well-tested in non-internet protocols. Often referred to simply as OSPF.

packet The unit of data sent across a packet switching network. The term is used loosely. While some Internet literature uses it to refer specifically to data sent across a physical network, other literature views the Internet as a packet switching network and describes IP datagrams as packets.

PC Personal Computer

PCNFS Personal Computer Network File System

POSIX Portable Operating System Interface
Operating system based on UNIX.

protocol
A formal description of message formats and the rules two computers must follow to exchange those messages. Protocols can describe low-level details of machine-to-machine interfaces (e.g., the order in which bits and bytes are sent across a wire) or high-level exchanges between allocation programs (e.g., the way in which two programs transfer a file across the Internet).

PSC Pittsburgh Supercomputing Center

PSCNET Pittsburgh Supercomputing Center Network

RFC The Internet's Request for Comments documents series
The RFCs are working notes of the Internet research and development community. A document in this series may be on essentially any topic related to computer communication, and may be anything from a meeting report to the specification of a standard.

RIP Routing Interchange Protocol
One protocol which may be used on internets simply to pass routing information between gateways. It is used on may LANs and on some of the NSFnet regional networks.

RJE Remote Job Entry
The general protocol for submitting batch jobs and retrieving the results.

RLOGIN Remote Login
A service on internets very similar to TELNET. RLOGIN was invented for use between Berkeley Unix systems on the same LAN at a time when TELNET programs didn't provide all the services users wanted. Berkeley plans to phase it out.

RPC Remote Procedure Call
An easy and popular paradigm for implementing the client-server model of distributed computing.

server A computer that shares its resources, such as printers and files, with other computers on the network. An example of this is a Network Files System (NFS) Server which shares its disk space with a workstations that does not have a disk drive of its own.

SESQUINET
Sesquicentennial Network
Texas-based regional network named for their sesquicentennial celebration

SMTP Simple Mail Transfer Protocol
The Internet standard protocol for transferring electronic mail messages from one computer to another. SMTP specifies how two mail systems interact and the format of control messages they exchange to transfer mail.

SNA System Network Architecture
IBM's data communications protocol.

subnet A portion of a network, which may be a physically independent network, which shares a network address with other portions of the network and is distinguished by a subnet number. A subnet is to a network what a network is to an internet.

subnet number
A part of the internet address which designates a subnet. It is ignored for the purposes internet routing, but is used for intranet routing.

SURANET Southeastern Universities Research Association Network
An NSFNET regional network.

T1 A term for a digital carrier facility used to transmit a DS-1 formatted digital signal at 1.544 megabits per second.

T3 A term for a digital carrier facility used to transmit a DS-3 formatted digital signal at 44.746 megabits per second.

TCP Transmission Control Protocol
A transport layer protocol for the Internet. It is a connection oriented, stream protocol defined by RFC 793.

TCP/IP Transmission Control Protocol/Internet Protocol
This is a common shorthand which refers to the suite of application and transport protocols which run over IP. These include FTP, Telnet, SMTP, and UDP (a transport layer protocol).

Telenet A public packet-switching network operated by US Sprint.

Telnet The Internet standard protocol for remote terminal connection service. Telnet allows a user at one site to interact with a remote timesharing system at another site as if the user's terminal was connected directly to the remote computer.

Token Ring
A type of LAN. Examples are IEEE 802.5, ProNET-10/80 and FDDI. The term "token ring" is often used to denote 802.5

Tymnet A public packet-switching network operated by McDonnell Douglas Network Systems Company.

UDP User Datagram Protocol
A transport layer protocol for the Internet. It is a datagram protocol which simply adds a level of reliability to IP datagrams. It is defined by RFC 768.

ULTRIX UNIX-based operating system for Digital Equipment Corporation computers.

UNIX An operating system developed by Bell Laboratories that supports multiuser and multitasking operations.

UUCP UNIX-to-UNIX Copy Program
A protocol used for communication between consenting UNIX systems.

VMS Virtual Memory System
A Digital Equipment Corporation operating system.

WAN Wide Area Network

WESTNET One of the National Science Foundation funded regional TCP/IP networks that covers the states of Arizona, Colorado, New Mexico, Utah, and Wyoming.

WHOIS An Internet program which allows users to query a database of people and other Internet entities, such as domains, networks, and hosts, kept at the NIC. The information for people shows a person's company name, address, phone number and email address.

XNS Xerox Network System
A data communications protocol developed by Xerox. It uses Ethernet to move the data between computers.

X.25 A data communications protocol developed to describe how data passes into and out of public data communications networks. The public networks such as Telenet and Tymnet, use X.25 to interface to customer computers.

12. Security Considerations

Security issues are not discussed in this memo.

13. Authors' Addresses

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